



Matthew McBride

Three keys to ensure a thorough prior art search

Matthew McBride, CAS, investigates prior art searching, specifically considering three key points to ensure success is achieved.

Imagine you have spent months working with a client to bring their new game-changing product to the global market. Then, a few weeks after launch, your client calls in a panic because they just received a cease and desist letter from an obscure company who claims the new product violates an existing patent in its portfolio. As you work to calm the client and resolve the issue, you find yourself asking “how could we have possibly missed that, and how do I make sure it doesn’t happen again?”

Patent infringement, rejection of a patent application, or invalidation of an existing patent are all negative outcomes that can result from incomplete prior art searches. Though these conflicts can often be resolved through negotiation, licensing, designing around, or even

costly invalidation of the conflicting patent, as a best practice it is better to mitigate risk and control costs by ensuring all relevant prior art is surfaced before the final IP strategy is set.

Patent search experts consider many factors when determining the scope and strategy for a prior art search. Whether you choose to do your own IP searching or outsource it to an expert third-party search firm, here are three fundamental keys to ensuring a complete prior art search so your clients won’t lose sleep.

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Keys to a Successful Prior Art Search



Choose the right sources

Patent searchers have many options when it comes to content sources to begin a prior art search. The most easily accessible are often open access resources available on the internet, including search engines like Google, and patent search interfaces maintained by patent offices, such as the USPTO and EPO. These sources can be a helpful start to get an indication of what exists in the patent landscape you’re investigating, but with limited search functionality and country coverage, relying solely on these tools can result in inefficiencies and key publications being missed.

To overcome these limitations, many commercial tools exist that augment the basic publically available patent information to make searching more effective and efficient. These enhancements range from simply aggregating and creating a consistent structure for the data, to curated

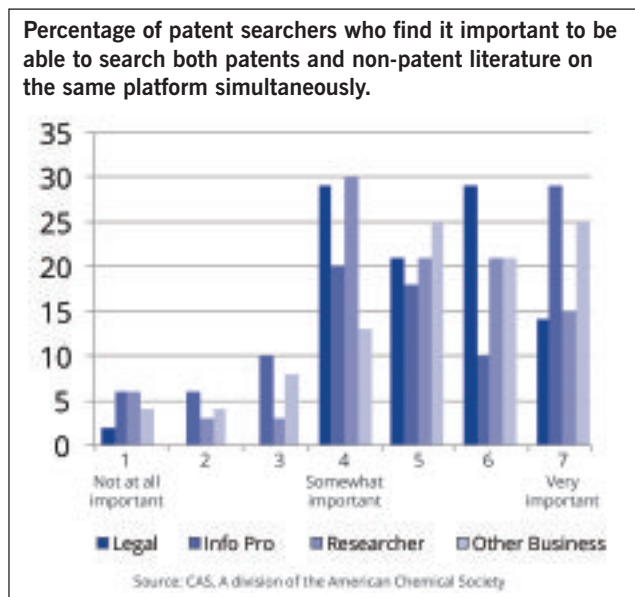
Résumé

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Matt conducts scientific research on behalf of Science IP clients. Prior to joining the Science IP team in 2010, he spent six years as a Senior Application Specialist providing STN® and SciFinder® technical training to CAS customers. Matt holds a Master of Science degree in plant pathology from the University of Minnesota and a Bachelor of Science degree in molecular biology from Purdue University. He is also a member of the Patent Information Users Group (PIUG).

indexing of the content by experts in the field. Expert indexing of content provides greater opportunities for precision and comprehensiveness of prior art searches by incorporating additional relevant terminology, translations, enhanced descriptions of content and novelty, and proprietary search tools.

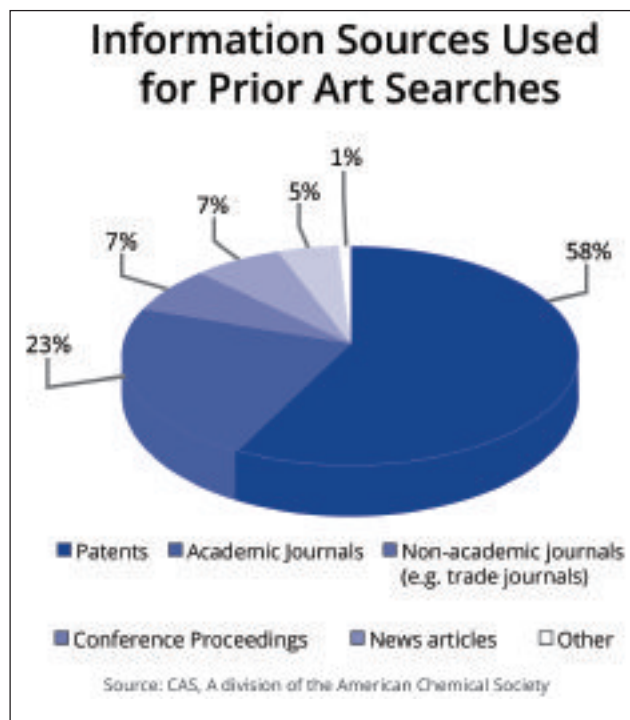
In particular, search platforms that provide access to patents along with critical non-patent sources, like journal articles, newsletters, and dissertations, in a single interface can be valuable. Since any type of disclosure can constitute prior art, your search should not stop with patents. However, tracking down and efficiently searching the diverse body of global literature presents considerable hurdles. This is why expert searchers rely on platforms like STN, a search platform jointly offered by CAS, a division of the American Chemical Society, and FIZ Karlsruhe, which brings together well over 100 databases. These databases include full-text patents, curated patent and non-patent literature sources, such as Derwent World Patents Index®, CAS databases, Embase®, BIOSIS®, SciSearch®, MEDLINE®, Compendex, INSPEC® and more. Niche databases covering newsletters, dissertations, and business news articles are also included. When a comprehensive search of prior art is needed, a source like this can support an efficient review of a broad swath of the literature on a topic.



Depending on the strategic importance of the search to the client, it can often be valuable to explore non-traditional sources as well, especially in cases when the stakes are high and traditional searches have exposed limited value. Older books, monographs, product

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catalogs, and encyclopedias may contain historical references not available in modern on-line sources, for example information on traditional medicine practices of indigenous people or products marketed decades ago. One might even consider non-traditional sources like YouTube, where university students regularly post videos of their research projects and experiments, or the Wayback Machine, which captures cached versions of websites from, well, way back for archival purposes. These sources have been cited by patent examiners from multiple offices in the patent prosecution record. Personal interviews may also sometimes be necessary to find undocumented historical practices. Though more time consuming, in cases where an exhaustive search is critical, like when seeking to invalidate an existing patent, exploring unconventional sources such as these could reveal prior art missed by others, giving your client an advantage.



Carefully define your scope

Other key considerations to be mindful of when undertaking a prior art search are the currency and coverage of the sources you choose. Each source only covers publications from certain years, countries, titles, etc. Often this exact coverage information is buried in the user documentation, but finding it (and understanding it!) is critical to ensuring that your search matches the client’s needs. Based on the legal purpose for the search, you may only need references before or after a certain date, or anything may be fair game. Many search platforms make it easy to limit your search by a specific date, but be sure you understand what data field the system is using to define that date. Publication dates, content update dates, grant dates, application dates, etc. all have different legal relevance. In the global age of business, country coverage is also crucial. In what markets does your client foresee selling this product now and in the future? Keep in mind, if a preliminary search is done with a limited scope, but the product strategy changes, to expand into new countries, for instance, it is important to revisit the search to make sure the conclusions hold for the new broader strategy scope.

How up to date your sources are is also important. Preferably, new information will be added to your selected content sources on a daily basis rather than on a weekly, monthly, or even worse, irregular, schedule. This provides confidence that your search results are as current as possible, which is crucial in an age when roughly 15,000

new publications impacting prior art, from patent applications, scholarly journals, dissertations and other sources, are published daily around the world.

Ask the right questions

Once you have chosen the best available sources, it is time to formulate your search query. For simple searches, keywords may be a good place to start. With a keyword search, it is important to make sure you have found all terms that experts in the field might use to describe the technology of interest. Foreign language terms might also be relevant if your search has a global scope. Also, depending on the timeframe the search covers, it may be important to consider how this technology has changed and what historical terms might be relevant. Has the patent classification scheme for this technology changed over time in the offices of interest?

Most curated databases offer thesauri that make it easy to answer these questions. These thesauri are compiled by subject matter experts to highlight key terms in the field and often contain historical term usage, synonyms, hierarchical broader and narrower terms, as well as tangentially related information. This allows for consistent searching. For example, when an applicant acts as a lexicographer and comes up with unusual terms to describe and, sometimes, obscure their invention, controlled terminology is applied to the intellectually curated records to make retrieval easier and more comprehensive. Additional terminology found in a specific database thesaurus can then be leveraged for searching many other sources as well. Ali Berkin, a Scientific Advisor in the New York office of Frommer Lawrence & Haug LLP, notes “Database thesauri, such as those found in STN, have helped me tremendously with claim construction in identifying patterns of words used by the same inventor in different publications.”

Keywords are just the beginning. Many search platforms enable searching by date, author, corporate source, patent assignee, legal agent, etc. Some platforms offer specialized search tools to facilitate searching in a specific technology area. In the chemical area, a chemical structure search is often the most efficient way to find relevant publications. You can search for a specific compound, a class of substances, Markush structures in patents, inorganic substances, or chemical reactions for process chemistry. In the engineering field, it is often beneficial to refine a search of the full patent text or journal abstracts by numeric information like percentages, pH ranges, time, pressure, temperature, or electrical conductance or resistance. Specialty databases, like those found on STN, allow for numeric searching of the text and will even find results where the number is within a range cited in the text, or the units differ from the ones you search, e.g. a search for 100 millimeters finds a reference noting 2-5 inches (100mm = 3.94 in). Though it is necessary to invest time and resources in accessing these specialty databases, they offer a much more precise and effective search, providing savings in the post-search review phase and uncovering prior art less sophisticated tools may miss.

Other alternative search approaches to consider include citation searching and competitor analysis. Citation searching can be done on a few references, or many, with the idea being to leverage what the examination process has indicated are the most relevant references in a technology area. Competitor analysis gives insight on how key



competitors in a field have described similar inventions, as well as to see how curated databases have indexed them. This information can then advise your broader search strategy.

Know when to stop

Arguably, the most important part of your search is deciding when you should stop. However, this can be a challenging decision, especially when no relevant references are found. When the goal is to uncover something you can't be sure exists, or verify the absence of something that might exist, how do you know when to stop? At what point can you say you have checked enough sources from enough perspectives to move forward?

Convergence is one goal that many search experts use to address this challenge. A good indicator your search is complete is when you have tried the search in numerous ways - including different sets of keywords, citation searching, a competitor review, a chemical name, text, and chemical structure searching - and the hits (or lack thereof) you get keep returning the same relevant results. If the results do not converge, and additional relevant answers continue to pop up as you try different approaches, then you should review the new results to see why they were not found by other methods, and enhance your original search approaches until convergence is achieved, or until it is determined that the body of references retrieved is sufficient to provide a legal opinion.

Conclusion

There is no perfect prior art search. As you seek to balance the investment of time and resources with the strategic importance of the outcome to your client, some risk will always remain; however, regardless of your searching budget, ensuring you are using the best available sources, setting an appropriate scope, and focusing on the best ways to ask the question will get you a good way toward avoiding surprises from missed prior art.

If the topic is unfamiliar or the outcome critical, it can often be valuable to consult with both technology and IP search experts. For example, Science IP, the CAS Search Service®, employs chemists and biologists with many years of patent search experience. They have access to the best available content and tools as well as Ph.D. scientist consultants to ensure the search strategy employed is as comprehensive as possible. When outcomes are critical, relying on search experts is often the most effective solution to mitigate risk and maximize client value.